

Compliance Evaluation Inspection (CEI) Report

1) Author of Report

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Alabama Department of Environmental Management (ADEM)
1400 Coliseum Boulevard, Montgomery, AL 36110

2) Facility Information

ABC Coke Division Drummond Company Inc. (ABC Coke)
900 Railroad Avenue, Tarrant, Jefferson County, Alabama 35217
Phone: 205-849-1330
Website: www.abccoke.com
US EPA ID #: ALD000823179
NAICS Code 324199: All Other Petroleum and Coal Products Manufacturing

3) Responsible Official

Mr. W. Mark Poling, Manager of Engineering and Environmental Compliance
Phone: 205-849-1342
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4) Inspection Participants

Mr. W. Mark Poling, ABC Coke
Mr. W. H. (Bill) Osborn, Environmental Coordinator, ABC Coke
Ms. Paula Whiting, Environmental Engineer, US EPA Region 4
Mr. Clay Messer, Environmental Engineer Specialist, ADEM
Mr. Kollan Spradlin, Environmental Engineer Specialist, ADEM
Mr. Adam Moore, Environmental Engineer Specialist, ADEM
Mr. James Burgess, Environmental Scientist Senior, ADEM

5) Date of Inspection

August 30 and 31, 2011

6) Applicable Regulations

ADEM Admin. Code div. 335-14, Hazardous Waste Program Regulations and 40 CFR Parts 260 - 270, 273, & 279

7) Purpose of Inspection

To determine compliance with all applicable requirements of the Hazardous Waste Program Regulations.

8) **Facility Description**

Drummond acquired ABC Coke in the early 1980's as part of the acquisition of the Alabama By-Products Corporation. ABC Coke has approximately 375 employees and operates year-round, twenty-four hours per day, seven days a week. ABC Coke has an annual capacity of approximately 730,000 tons of saleable coke. ABC Coke's operations include Coal Handling, Coal and Coking Waste Blending, Coke Ovens, Coke Handling, and By-Products. The following information is a summary of information obtained from ABC Coke's website and from other public records.

Coal Handling – ABC Coke receives all of its bituminous coal, also referred to as metallurgical or coking coal, approximately one million tons annually from coal mines owned and operated by the Drummond Company. The coal is washed before it is delivered to ABC Coke by rail and by truck. Incoming coal is properly identified and weighed. The coal is separated and stored by grade into the first nine of the ten seven hundred ton concrete silos or to stockpiles in the coal storage yard. Coking coal immediately begins to lose fluidity through oxidation so the coal is processed from the oldest to the newest.

Kipin Process Area – Coking waste that is not recycled to the coking or coke by-products processes includes US EPA No. K060, K087, K141, K142, K143, K144, K145, K147, and K148 and any other characteristic wastes from the coke by-products processes. The coking waste from the on-site By-Products Plant and coking waste from off-site plants (from all over the US) is recycled by blending it with coal and used oil in the Kipin Process Area. According to ABC Coke, the Kipin Process Area has been operating at the ABC Coke facility since 1995 with an approval letter from the ADEM Field Operations Division's Birmingham Branch.

Coal Blending – Coal from silo one through nine that is involved in the blend and Kipin Product from silo number ten is fed onto a conveyor leading to the pulverizer. The feeding and blending of the coal and the Kipin Product is controlled by a scale on the feeder belt from the silos with accuracy within one-half of one percent. The materials are further blended and reduced to fine sand like consistency and then goes via conveyor belt to large storage bins above the coke oven batteries.

Coke Ovens – ABC Coke has three batteries of coke ovens; the largest battery has seventy-eight Wilputee five-meter coke ovens (sixteen and four tenths feet high, eighteen inches wide, and forty-six feet long) and two smaller batteries containing 54 Becker four-meter coke ovens. The silica brick ovens alternate on both sides with flues heated by burning gases. Blended coal (charge) is fed from the coke oven storage bins located above the ovens into bins on top of a Larry car. The Larry Car moves to a previously emptied hot oven, lowers and lifts the oven charging port lids, the charge is fed from the bins on the Larry Car through drop leg hoppers into the hot oven until it is full, the charging lids are replaced, and the Larry Car moves away. An operator aligns and seals each of the lids on top of the charged oven to prevent air from being drawn in or emissions from escaping. Next, another operator opens the chuck door on the pusher side of the newly charged oven with a pusher machine and a leveling bar is inserted; the charge is leveled and the chuck door is replaced and secured. Oven temperature, steam pressure, and other essential parameters are controlled from a single location at the battery. The charge, in the absence of oxygen, melts into a thick tar-like consistency inward from the hot walls until the melting zones meet in the center along the entire length of the oven and the charge is completely coked.

Coke Handling – The pusher side and the opposite coke side doors on the oven are removed; a steel coke guide extends on the coke side to reach across the bench. The ram from the pusher car pushes (empties) the coke out of the coke oven onto the railroad car (hot or quench car) while the operator moves the quench car slowly along the track to evenly load the glowing red hot coke into the car. The filled hot car is moved to the quench tower where a heavy spray of water cools the coke below the glowing stage and causes a huge column of vapor to rise into the sky above the quench tower. The quench car then proceeds to a slanted wharf and unloads; the coke is held on the wharf by a series of gates. After the coke has cooled, it is released down the wharf onto a conveyor belt and is moved up to the top of a massive double screening station. The coke passes over vibrating screens that separate the coke into sizes; the sized coke is loaded onto trucks or railcars for shipment to customers. ABC Coke operates two production size quality control cupolas to ensure that the coke performs under working conditions of the customer; the pig metal that is produced is sold as scrap.

By-Products Recovery Plant – During the destructive distillation coke making cycle hot gases in the coal are driven off as the temperature increases generating coke gases. These gases are captured in a network of pipes and mains on top of the ovens and are piped to the By Products Recovery Plant where tar, light oils, and sulphate are extracted for sale. The remaining gas is used in firing the ovens, fueling the on-site electric power generator, or made available for sale.

9) Observations

The inspectors arrived at ABC Coke, gained admittance through the gate, and then met with Mr. Poling. During the opening conference, the inspection team was introduced, the purpose of the inspection was given, and a description of the facility operations was requested. The inspectors, accompanied by Mr. Poling, performed a CEI of the facility; a description of the observations made during the CEI follows.

Material Handling – Material Handling includes the Coal Handling and Coal Blending operations that were described in the Facility Description section. Drainage ditches are located to drain sprinkler system and storm water runoff containing coal and coke breeze fines. The Kipin Process area is located in the Material Handling area close to the coal and coke breeze storage piles. No readily apparent concerns regarding hazardous waste management were noted.

Kipin Process Area – Two metal holding tanks for holding the liquids that are blended into the coking wastes and other materials as part of the process are located outside the process area near the shed. At the time, the inspection team was in the area the process was not operating. The process area itself is a walled open air area with a single entrance for both equipment and personnel. The concrete base or floor of the pad is eighteen inches of concrete with a six-inch channel poured in concrete. The concrete pad in the process area is surrounded on three sides by walls constructed of massive concrete blocks and walled on the inside with half-inch steel plates set into the six-inch channel in the concrete; the plates are welded at the seams to within approximately twelve inches of the top of the wall. At the time of the inspection, the inspection noticed damage to some of the plates apparently from the use of the front end loader. The intersection of the steel plates with the concrete base all around the inside of the process area was covered with residual Kipin Product. Kipin processing/blending equipment was located along the right including the half-vats that contained coking by-products waste. Incoming materials are placed into open-topped half-vats; an excavator moves the material into a bin that feeds an auger; the auger mixes the materials with coal. The blended material (Kipin Product) goes onto a conveyor belt that discharges to the south end of the process area. From there a front end loader moves the Kipin Product into the chute and onto the conveyor belt that emerges from a concrete containment pit beneath located below ground on the left side of the process containment. The conveyor belt delivers the Kipin Product to silo number ten. Only silo number ten receives the Kipin Product. On the concrete pad in the process area, we observed materials that were to be cleaned and then moved to KMAC area for reclamation. Stormwater and wash water in the Kipin Process area drains into the concrete containment pit underneath the chute and from there goes onto the Kipin Product going to silo number ten.

KMAC Yard – The KMAC yard is located by the finished coke stockpiles at the end of the Material Handling area. KMAC Services (US EPA ID# ALR000008474), an independent contractor, collects and manages for recovery all solid waste, waste-like materials, and “carbon waste” that are not returned to the coke making process. The “carbon waste” is below ABC Coke’s specification for use in making coke. The below-specification carbon waste still has an output of at least 10,000 British Thermal Units (BTU). KMAC removes the carbon from the waste and resells the carbon (customers include coal burning power plants). In addition to piles of carbon waste mixed with a variety of site debris, the yard has an open blue roll off for the collection of bagged solid waste and other site debris to be taken to KMAC for processing. Along with other site materials and debris, the inspection team noticed two partially filled aerosol cans that were lacking nozzles and labels on top of the carbon waste piles.

Pre-Treatment Pond – ABC Coke’s storm water ditches collect the runoff containing coke breeze, coal fines, oil releases, etc. The runoff flows into the Pre-Treatment Pond equipped with surface booms to skim oil and retain floating trash; the fines in the stormwater settle out and are removed and analyzed to determine how they will be used. The outlet from the Pre-Treatment Pond discharges via pipe into the Surface Impoundment. The Pre-Treatment Pond discharge is not tested prior to release to the Surface Impoundment. The booms are recycled in the Kipin Process.

Surface Impoundment – A shoal or bar of fines that did not settle out in the Pre-Treatment Pond surround the pipe inlet at the mouth of the Surface Impoundment. The water flows from the inlet, around the shoal and then meanders to the filter-dam. The filter-dam, constructed in 1985, is made of riprap (trapezoidal, twenty-five feet wide at the base and eighteen feet across the top) overlaid on the impoundment side with half-inch felt (extends downward to the bottom of the Surface Impoundment) covered by twelve inches of sand. The water slowly passes through the filter dam onto a concrete spillway that discharges to Five Mile Creek.

Biological Wastewater Treatment Plant (WWTP) – ABC Coke uses single, double and triple cell organisms (bacteria commonly referred to as “bugs”) to digest the ammonia, phenols and other pollutants in the wastewater from the facility. The WWTP Equalization Basins has two aerators that mix bugs into the wastewater; The

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temperature dependent bugs take four to five weeks to train to digest the chemicals in the wastewater. Every four days a vacuum operated filter press removes bugs from the sludge to keep the remaining bugs "hungry" and actively feeding on the pollutants in the wastewater. The WWTP uses a Calgon Carbon Corp. carbon filtration system to finish the treatment. After the activated carbon's adsorptive capacity has been exhausted, Calgon Carbon Corp. removes the spent carbon and replaces it with activated carbon. The exhausted carbon is transported to Calgon Carbon Corp.'s Reactivation Facility in Pittsburgh, PA for thermal reactivation.

Main Maintenance Shop – The Main Maintenance Shop has a Safety-Kleen parts-washer that is serviced and maintained by Safety-Kleen. The following items of interest were noted: absorbent on an oily release surrounding an equipment base and a KMAC scrap bin containing discarded aerosol cans.

Container Building – The Container Building is used to store containers of used oil, product oil, and oil change equipment. The floor and floor grates are considered part of the process area's containment system that discharges to the WWTP by way of the By-Products Area and the Ammonia Still. The seven items of interest were noted in this area: (1) a green 55-gallon drum marked "Scrap Oil", (2) a blue plastic swimming pool containing an oily liquid residue, (3) an unlabeled, open 5-gallon container of used oil, (4) an open 5-gallon used oil container with two spent oil filters inside, (6) two labeled and open used oil drainage containers still containing residual used oil, and (7) oil absorbent around the base of a Safety-Kleen 30-gallon, drum-mounted parts-washer.

Door Maintenance Shop – The Door Maintenance Shop maintains and repairs the coke oven doors and replaces the ceramic insulation plugs that are located on the inside of the coke ovens doors when they become too cracked to continue to properly insulate the door from the intense oven heat. The carbon build-up on the oven doors is removed and depending of the BTU is sent either to the Kipin Process Area or to the KMAC yard. ABC Coke uses the cracked plugs as dams in the sites drainage ditches to slow the flow of runoff and allow fines to be deposited in the ditches before the runoff reaches the pre-treatment pond.

Electrical Shop – ABC Coke's Electrical Shop personnel maintain and repair site electrical equipment and replace burned out lamps including spent fluorescent and high intensity discharge (HID) lamps. The spent fluorescent tube lamps are crushed in an Air Cycle five-gallon Bulb Eater® Model No. 6. The unit is not equipped with any means to control emissions from the crusher during operation. The five-gallon container of crushed lamps is periodically bagged and along with bagged HID lamps is taken to the blue dumpster located at the KMAC yard. The shop also cleans parts with a part washer maintained by Safety-Kleen.

Storeroom – The Storeroom maintains a supply of new HID and fluorescent lamps and new lead acid batteries. The staff also signs and maintains the hazardous waste manifests for the three on site part-washers that are maintained by Safety-Kleen. Five pallets of spent lead acid batteries stored outside the Storeroom that were to be returned to the vendor.

Records Review After completing the site tour of the operations (included in the above observations), the inspection team reviewed or made an attempt to review the following facility records related to solid waste and hazardous waste management, universal waste, and recycling: most recent annual notification of regulated waste activities, hazardous waste manifests, solid – hazardous waste determinations, KMAC disposal/recycling records, emergency preparedness and prevention documents, weekly inspection records, and employees hazardous waste management training records.

ADEM Form 8700-12 – On May 24, 2011, ABC Coke notified the department of used oil generator/collector and small quantity universal (lighting) waste handler activities. ABC Coke stated on page three, in the comment section below the certification and signature: "Used oil and tar decanter sludge are recycled to our coke ovens using the "Kippen" process where it is destructively distilled into other marketable products. A waste water treatment unit is used to treat process liquids and produces a non-hazardous sludge which is also recycled to the coke ovens." ABC Coke did not indicate any hazardous waste generation, generator status, or treatment activity in the notification.

KMAC tickets for the facility waste, aerosol cans, crushed fluorescent lamps and the low-value carbon were not available; the inspection team was told that ABC Coke does not manifest the materials removed by KMAC. Hazardous waste manifests for 2008-2011 were reviewed for the parts washers serviced by Safety-Kleen Systems. A review of the manifests revealed that on ten occasions, the amount of hazardous waste indicated on the manifests exceeded 220 pounds of hazardous waste spent solvent (up to forty-five gallons at a time) for the month that the parts washers were serviced. The contaminated solvent in a parts washer becomes a waste on the day that the part washer is serviced and the dirty solvent is removed. The Integrated Spill Prevention Control and Counter Measure/Stormwater Best Management Practices Plan, Revision 2, November 2008 was reviewed; the plan requires that ABC Coke ensure *"daily safety and housekeeping inspections are conducted in all areas of the facility"*.

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Documentation of the following was not available during the time of the records review: solid / hazardous waste determinations for the materials removed by KMAC, arrangements with state and local emergency responders, inspections logs, and personnel hazardous waste management training records.

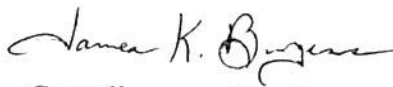
10) Summary

An ADEM Preliminary Inspection Report was prepared with the assistance of EPA. An exit meeting was held with ABC Coke during which the following Preliminary Inspection Report list of potential noncompliance observed or identified during the CEI and was reviewed and discussed.

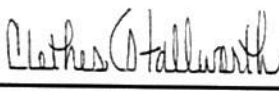
1. Manifests and records reviewed for 2008-2011 indicate solvent characteristic (D039) wastes greater than 220 pounds were generated numerous times (1/10/09, 7/28/09, 10/21/09, 1/13/10, 5/25/10, 6/28/10, 9/16/10, 2/4/11, 5/17/11, and 8/23/11).
2. Hazardous wastes determinations were not available for wastes being sent off-site to K-Mac (ex. lighting waste lamps, crushed fluorescent lamps and carbon waste, aerosol cans that are not empty, etc.)
3. A manifest was not available for waste generated on 5/17/11.
4. ABC Coke notified in 2009, 2010, and 2011, as a used oil generator but did not indicate they were a small quantity generator.
5. Records that demonstrate the amount of hazardous waste generated each month were not reviewed.
6. The fluorescent lamp crusher was not equipped with a device to control releases of mercury to the air; it was not closed.
7. A training program familiarizing employees with proper hazardous waste management including training records and a written description of the training program were not reviewed.
8. Documentation of emergency procedures and arrangements with local emergency responders were not reviewed. (SPCC and Storm water BMPP Plan was reviewed.)
9. The 5 gallon bucket containing crushed lamps was not marked with words describing the contents, (It was labeled "Bulb Eater" etc.) or with the words "Hazardous Waste".
10. Lead-acid batteries: three of the batteries were missing caps – they were among batteries stored outside awaiting return to the battery vendor.
11. A 55 gallon container of used oil was marked "scrap oil."
12. Crushed fluorescent lamps and uncrushed metal halide lamps are offered to/transported by K-Mac without the use of a hazardous waste manifest.

The report was reviewed and accepted by Mr. Poling for ABC Coke. We departed ABC Coke at approximately 5:10 PM.

11) Signed

 12/19/2011
Compliance and Enforcement Section
Industrial Hazardous Waste Branch
Land Division

12) Concurrence

 December 19, 2011
Clethes Stallworth, Chief
Compliance and Enforcement Section
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